

Connecting Corridors and Communities



PHCC Working Together
Peel-Harvey Catchment Council

Edition 5
April 2020

Restoring the Serpentine River

Welcome to the fifth edition of *Connecting Corridors and Communities* - an update on the project and on Natural Resource Management (NRM) in the Serpentine River Corridor. NRM refers to the management of natural resources such as land, water, soils, plants and animals. It brings together landuse planning, water management, biodiversity conservation and the future sustainability of industries such as agriculture, mining, tourism, fisheries and forestry.

Assessing Our River's Health

In spring 2019, PHCC's Rivercare Team and Murdoch University's Freshwater Fish Group and Fish Health Unit rallied together to perform River Health Assessments at five sites on the Serpentine River. These assessments use a standardised set of measurements known as the South West Index of River Condition (SWIRC) to determine the current ecological condition of the river. The SWIRC, developed by the Western Australian Government Department of Water and Environmental Regulation, compares measurements of the abundance and diversity of freshwater fish, crayfish, mussels and other invertebrates, the extent and nature of fringing vegetation, the naturalness of river form and water quality at selected sites along the river. Sites that are in relatively good condition are referred to as reference sites and by comparing against these we get a measure of the condition of the river relative to what we would like it to be.

We used the Serpentine River Action Plan, which identifies priority works to restore the river, to guide us in choosing the location of the reference and assessment sites, as well as consulting with the local Bindjareb Noongar elders and leaders to include sites of special cultural significance along the Serpentine River. A total of five sites were identified in this way.

The fieldwork was undertaken by Dr

Stephen Beatty and his team from the Harry Butler Institute at Murdoch University with help from PHCC's Rivercare team. The Traditional Owners also joined us for a day to share their stories and valuable knowledge about the river and its surroundings.

Aquatic animals are good indicators of the ecological function of rivers and streams. At our reference sites we saw high abundances and diversity of native freshwater species such as the gilgie, pygmy perch, western minnow, nightfish and Carter's freshwater mussel relative to introduced and exotic species such as the yabby and goldfish. The native species were found in lesser numbers at our assessment sites. In our assessments of fringing vegetation and the overall form of the river, we found the river to be in better condition further upstream where features such as riffles, pools and emergent vegetation along the river were more common.

A second round of sampling was to occur in autumn 2020 however, earlier this year some of the sites were affected by bushfire. Therefore, sampling has been postponed to occur later in spring to allow the opportunity to look at the potential impacts of bushfire on native fish populations, a first for the southwest of WA.



Carter's Freshwater Mussel



Southwestern Snake-Necked Turtle

Celebrating Partnerships With Our Funders



Sam Hopkins, 2030, Sculpture by the Sea, Cottesloe, 2020. Photo by Clyde Yee.

In recognition of PHCC's efforts in delivering the Alcoa Foundation's 'Three Rivers One Estuary Initiative', the team were invited to attend an evening at the Sculptures by the Sea exhibition at Cottesloe Beach.

Hosted by Alcoa, a foundation sponsor of this annual event, the evening started with a guided tour of the exhibition by Louis Pratt, one of the gifted artists who contributed their artwork to the exhibition. Louis gave a detailed description of each of the sculptures, the artists and the stories behind them. Some pieces in this year's collection represented the connection between art and the environment, with some artists drawing on the theme of climate change for inspiration.

This was followed by a Welcome to Country and a night of networking with our Three Rivers, One Estuary partners from Greening Australia and The Nature Conservancy, the Alcoa community and other stakeholders and supporters of the arts and culture.

We thank Alcoa Foundation and Alcoa for the ongoing support in helping us protect and conserve our beautiful catchment and estuary.

Connecting Corridors and Communities

Restoring the Serpentine River

Supporting Our Serpentine River Community

Earlier this year, a bushfire burnt through more than 1,200 hectares of land between Baldivis and Serpentine, including much of the area covered by our 'Connecting Corridors and Communities: Restoring the Serpentine River' project.

The Rivercare team is working closely with those affected by the fire to help restore patches of damaged land adjoining to the Serpentine River. The team has been busy conducting site visits and keeping in touch with our Community Environment Grant landholders who were impacted by this fire. Sadly, many of kilometres of fencing and vegetation was damaged but thankfully no lives were lost and homes and livestock were not affected.

The extensive removal of vegetation through fire, in particular the tree canopy, exposes the soil to the elements and can result in loss of the top soil through wind and water erosion with the onset of winter rains. Loss of the top soil means a loss of fertility as the nutrients, in particular organic carbon, that landholders have worked hard to incorporate into their soils over many years are blown away by the wind or washed away into the Serpentine River. This will have a profound impact on the productivity of land used for agricultural production, for example pastures for cattle grazing. Washing away of top soil into drains may also result in siltation of the Serpentine River and in some of the deeper pools of the river accumulations of monosulfidic black oozes, the smelly black muck that plagues

the lower reaches of the Serpentine River and navigation channels of the Peel-Harvey Estuary.

Although, it is clear that existing native species such as the Melaleuca (paperbark) are healthily regenerating post fire, PHCC and other organisations will be keeping a close eye on how the fire has impacted the river system. As discussed in the story above, River Health Assessments will be performed in spring this year through the 'Connecting Corridors and Communities' project at selected fire-affected sites where we performed identical assessments last year. This gives us the unique opportunity to investigate how the health of the river has been affected by the fire and what the impacts further downstream might be.

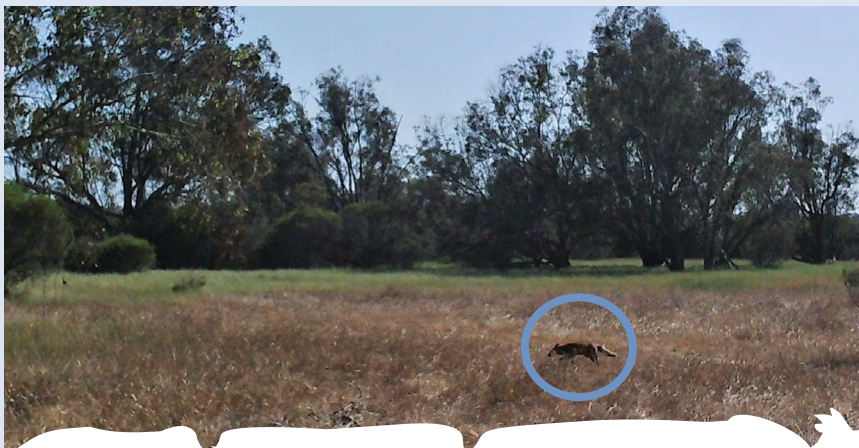


Taking Action on Feral Animals

Through PHCC's Community Environment Grant program, Landcare SJ, Peel-Harvey Biosecurity Group and PHCC have teamed up together to tackle the issue of feral animals that are using the Serpentine River corridor as a highway.

Four private landholders living next to the river signed up to have a monitoring camera installed on their property for four weeks as part of a 'camera challenge' to see if feral animals including foxes (see photograph below) and rabbits were inhabiting their property or using it as a thoroughfare. The results are in and there is evidence of foxes travelling up and down the river and through private properties. As a result, Landcare SJ and the Peel-Harvey Biosecurity Group are now working closely with these landholders to reduce the impact of these feral animals through baiting and trapping programs.

If you live in the Serpentine River area and are interested in undertaking feral animal control training or receiving some advice, please simply get in contact with Kristy Gregory from Landcare SJ on 0407 526 989 or via email kristy@landcaresj.com.au.



Update on Water Hyacinth

The highly invasive aquatic weed Water Hyacinth (*Eichhornia crassipes*) is known to occur in the Serpentine River where a concerted collaborative effort between Landcare SJ, Envirapest, PHCC and the Western Australian Government Department of Communities is continuing to bring the weed under control.

Water hyacinth thrives in warmer temperatures so it is important that we closely monitor the density of this weed in the Serpentine River during the hotter months. Local weed contractor Envirapest has reported that water hyacinth has not been sighted through the summer which is great news. However, with up to 300 seeds in each plant remaining viable for almost 20 years, it is a necessity that we continue to closely monitor the river and act quickly when an infestation outbreak occurs to avoid it taking over and choking reaches of the river.



This project is supported by the Peel-Harvey Catchment Council through funding from the Alcoa Foundation's *Three Rivers, One Estuary Initiative*.

Alcoa Foundation: Investing where Alcoa has a presence, partnering with communities to address local needs in a sustainable manner. With our nonprofit partners, we contribute to environmental excellence, economic success and social responsibility around the globe.



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